

U.S. Patent Application Serial No. 10/577,322

Amendment filed February 11, 2009

Reply to OA dated September 5, 2008

### **AMENDMENTS TO THE CLAIMS:**

Please cancel claim 26 without prejudice or disclaimer, amend claims 1-14 and 25, and add new claims 27 and 28, as follows. This listing of claims will replace all prior versions, and listings, of claims in the application:

#### **Listing of Claims:**

Claim 1 (Currently amended): An electroluminescent material comprising an oxide having a perovskite-type crystal structure represented by General Formula  $\text{RMO}_3$ , wherein R represents at least one rare-earth element, and M represents Al, Mn or Cr;  
the oxide further comprising alkali metals dopant.

Claim 2 (Currently amended): An electroluminescent material comprising ~~an oxide~~  $\text{Nd}_2\text{CuO}_4$  or  $\text{Y}_2\text{CuO}_4$  having a perovskite-type crystal structure ~~represented by General Formula  $\text{R}_2\text{CuO}_4$~~ , wherein R represents ~~at least one rare-earth element~~.

Claim 3 (Currently amended): An electroluminescent material comprising an oxide having a perovskite-type crystal structure represented by General Formula  $\text{RZ}_2\text{Cu}_3\text{O}_6$ , wherein R represents at least one rare-earth element, and Z represents at least one ~~alkali-earth~~ alkaline earth metal;  
the oxide further comprising at least one dopant selected from the group consisting of alkaline earth metals, Mg, alkali metals, and transition metals.

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Claim 4 (Currently amended): An electroluminescent material according to ~~any one of Claims 1 to 3~~ claim 2, wherein the oxide further comprises at least one dopant selected from the group consisting of ~~alkali-earth~~ alkaline earth metals, Mg, alkali metals, and transition metals.

Claim 5 (Currently amended): An electroluminescent material according to ~~any one of Claims~~ claim 1 ~~[[to]]~~ or 3, wherein the rare-earth element R is at least one member selected from the group consisting of Sc, Y, La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, and Lu.

Claim 6 (Currently amended): An electroluminescent material according to Claim 4, wherein the dopant is an ~~alkali-earth~~ alkaline earth metal that is at least one member selected from the group consisting of Ca, Sr, and Ba.

Claim 7 (Currently amended): An electroluminescent material according to Claim 3 or 4, wherein the dopant is Mg.

Claim 8 (Currently amended): An electroluminescent material according to ~~Claim~~ any one of claims 1, 3 and 4, wherein the dopant is an alkali metal that is at least one member selected from the group consisting of Li, Na, K, Rb, and Cs.

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Claim 9 (Currently amended): An electroluminescent material according to Claim 3 or 4, wherein the dopant is a transition metal that is at least one member selected from the group consisting of Ti, V, Cr, Mn, Fe, Co, Ni, Cu, and Zn.

Claim 10 (Currently amended): An electroluminescent material according to Claim 3 or 4, wherein the proportion of the ~~alkali-earth~~ alkaline earth metal dopant contained in the oxide is 0.001 to 10% when expressed as a mole % of the ~~alkali-earth~~ alkaline earth metal dopant relative to M or Cu.

Claim 11 (Currently amended): An electroluminescent material according to Claim 3 or 4, wherein the proportion of the Mg dopant contained in the oxide is 0.001 to 10 % when expressed as a mole % of Mg dopant relative to M or Cu.

Claim 12 (Currently amended): An electroluminescent material according to ~~Claim~~ any one of claims 1, 3 and 4, wherein the proportion of the alkali metal dopant contained in the oxide is 0.001 to 10 % when expressed as a mole % of alkali metal dopant relative to M or Cu.

Claim 13 (Currently amended): An electroluminescent material according to Claim 3 or 4, wherein the proportion of the transition metal dopant contained in the oxide is 0.001 to 10 % when expressed as a mole % of transition metal dopant relative to M or Cu.

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Claim 14 (Currently amended): An electroluminescent element comprising an electroluminescent layer formed from an oxide electroluminescent material ~~of any one of Claims 1 to 3~~ having a perovskite-type crystal structure represented by a general formula selected from the group consisting of the following general formulas:

General Formula  $\text{RMO}_3$ , wherein R represents at least one rare-earth element, and M represents Al, Mn or Cr;

General Formula  $\text{R}_2\text{CuO}_4$ , wherein R represents at least one rare-earth element; and

General Formula  $\text{RZ}_2\text{Cu}_3\text{O}_6$ , wherein R represents at least one rare-earth element, and Z represents at least one alkaline earth metal.

Claim 15 (Original): An electroluminescent element according to Claim 14, wherein the electroluminescent layer is formed from a single-crystalline oxide thin film.

Claim 16 (Original): An electroluminescent element according to Claim 14, wherein the electroluminescent layer is formed from a polycrystalline oxide thin film.

Claim 17 (Original): An electroluminescent element according to Claim 14, wherein the electroluminescent layer is obtained by the compression molding of oxide fine particles, or by forming a paste comprising oxide fine particles into a layer and then drying.

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Claim 18 (Original): An electroluminescent element according to Claim 14, wherein the electroluminescent layer is obtained by the compression molding of a mixture of oxide fine particles and a binder, or by forming a paste comprising a mixture of oxide fine particles and a binder into a layer and then drying.

Claim 19 (Original): An electroluminescent element according to Claim 14, wherein the electroluminescent layer is formed by sputtering.

Claim 20 (Original): An electroluminescent element according to Claim 14, wherein the electroluminescent layer is formed by laser ablation.

Claim 21 (Original): An electroluminescent element according to Claim 14, wherein the electroluminescent layer is formed by metal salt thermal decomposition.

Claim 22 (Original): An electroluminescent element according to Claim 14, wherein the electroluminescent layer is formed by metal complex thermal decomposition.

Claim 23 (Original): An electroluminescent element according to Claim 14, wherein the electroluminescent layer is formed by a sol-gel process using an alkoxide.

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Claim 24 (Original): An electroluminescent element according to Claim 14, wherein the electroluminescent element further comprises a light reflection layer.

Claim 25 (Currently amended): An electroluminescent material according to Claim 3, wherein the ~~alkali-earth~~ alkaline earth metal is at least one member selected from the group consisting of Ca, Sr, and Ba.

Claim 26 (Canceled).

Claim 27 (New): An electroluminescent material comprising an oxide having a perovskite-type crystal structure represented by General Formula  $\text{RMO}_3$ , wherein R represents at least one rare-earth element, and M represents Al or Mn;

the oxide further comprising at least one dopant selected from the group consisting of alkaline earth metals, Mg and alkali metals,

wherein the alkaline earth metals is at least one metal selected from the group consisting of Sr and Ba.

Claim 28 (New): An electroluminescent material comprising an oxide having a perovskite-type crystal structure represented by General Formula  $\text{RMO}_3$ , wherein R represents at least one rare-earth element, and M represents Mn;

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the oxide further comprising at least one dopant selected from the group consisting of alkaline earth metals, Mg, alkali metals, and transition metals.